

Mr. E. B. Kennedy records the capture of a *Tachyglossus* at Plain Creek, in lat. 21° south. And, from information derived from one of my troopers, I am of opinion that it will be found on the Leichardt ranges, as also throughout the length and breadth of the Cape-York peninsula. The New-Guinea forms will, I think, vary (perhaps only slightly) from our Australian types, judging by Mr. Ramsay's description of *Tachyglossus lawesii* (Proc. Linn. Soc. New S. Wales, 26 March, 1877).

I forward, under separate cover, the head of an adult female killed at Georgetown, for comparison with the New-Guinea and South-Australian types.

I have not, as yet, been able to secure specimens of the *Ornithorhynchus*; but I watched one swimming about in a large water-hole situated 150 miles west of Georgetown on the road to Normanston. I distinctly saw this animal's head and bill above water, but was unable to capture it, as it dived on hearing the pack-horses trotting up to the hole to drink. My boys inform me that they saw this "funny fellow" in the Upper Herbert; and it occurs on the Leichardt river. The extreme northern limit is therefore at present formed by the 18° of south latitude.

The absence of *Tachyglossus* on the Flinders and Gilbert river-plains is easily accounted for by the absence of scrubs and hills, or rocks, under which they generally burrow. It never comes out to feed except during the night: and when attacked, simply rolls itself into a spiny ball. Four men, by taking one claw each, had considerable difficulty in stretching one out. They resemble a hedgehog in outward appearance, but are much darker.

Remarks on the Skull of the *Echidna* from Queensland.

By Dr. J. MURIE, F.L.S.

[Read June 20, 1878.]

ALONG with his paper, Capt. W. E. Armit was good enough to forward to the Society a roughly cleaned dried skull of the *Echidna* obtained by him, to which the following label was attached: "Head of *Tachyglossus (histris?)* ♀, killed near Georgetown, in 18° S. lat., Nov. 1876." As, moreover, he has expressed a desire that it should be compared with those of South Australia and New Guinea, I have fulfilled this wish so far as circumstances permitted.

The skin and snout-membrane from the eyes forwards were intact; and the palatal membrane was also in a perfect state of preservation, though dried. Slight injury had been sustained in the bones of the left supraoccipital and postparietal region; but as tissue held this fractured area together, it did not materially interfere with the examination and comparison of the cranium. Having softened the hardened tissues by soaking the specimen in water for a few days, I could well make out the natural appearance of the nostrils and mouth and of the palate-ridges. These I made sketches of, and meanwhile compared the objects themselves with the excellent illustrations of Prof. Paul Gervais* of the *Echidna* of New Guinea, *Echidna (Acanthoglossus) bruijnii*.

The orifices of the nostrils of Capt. Armit's specimen are shorter and more triangular than in Gervais's sketch of those of the Northern New-Guinea animal. In this respect they rather agree with the representation given by Mr. E. P. Ramsay† of his *Echidna (Tachyglossus) lawesii* of Southern New Guinea; but they equally correspond, so far as I can make out, with the common Australian form, *E. hystrix*. I may note that there is a tiny elevation or nipple-like process at the posterior end of each orifice, which seems absent in *Acanthoglossus*, and, I believe, is not mentioned by writers as present in the older known species of *Echidna*.

Prof. Gervais figures the mouth of *E. bruijnii* as longer and narrower, and with a decidedly more lanceolate lower lip than obtains in Capt. Armit's Queensland specimen, where, as in the common *Echidna*, upper and lower lips have a roundish contour and the oral opening short and relatively wide. In this Queensland *Tachyglossus*, from the tip of the snout to the angle of the mouth measures 0·4 inch; the width of mouth-opening 0·25 inch, and the snout width 0·35. In *T. lawesii*, Mr. Ramsay gives the corresponding dimensions as 0·45, 0·3, and 0·5 inch respectively. In *Acanthoglossus* the measurements are 0·8 inch, 0·2 inch, and 0·32 inch, as derived from Gervais's fig. 3, pl. vi. Thus the two former offer nearer approximations, and, while differing from the latter, agree with *E. (Tachyglossus) hystrix*.

As regards the character of the soft palate, Capt. Armit's specimen shows obviously, and at a glance, marked distinctions from that depicted in pl. vii. fig. 5 of Gervais's illustrations of the

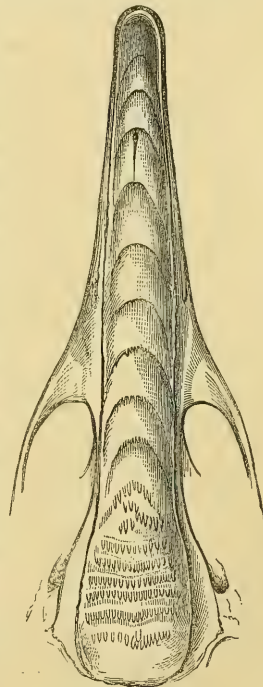
* 'Ostéographie des Monotrèmes vivants et fossiles,' Atlas, plates vi. & vii.

† "Note of a Species of *Echidna (Tachyglossus)* from Port Moresby, New Guinea," Proc. Linn. Soc. of New South Wales, vol. ii. p. 31, and pl.

New-Guinea form. In this latter, according to him, rearwards there are five transverse lines of adnate conical papillæ lessening in the number of tubercles forwards, and in advance a dozen median linear, double, single, or rosette-like clumps. He remarks also that the palate of the Australian *Echidna* has seven serial transverse spiny lines bearing some resemblance to those of *E. bruijnii*. In the palate of the Queensland animal (woodcut) I find eight approximated, transverse, tuberculated rows posteriorly, and 0·3 inch in front of these another more arcuate,—that is, in all nine well-marked tuberculate cross ridges. Furthermore, there are eight somewhat scale-like cross arches, in one or two of which tracings of serrate free border is visible with a hand-lens. These latter are situate nearly equidistant, and about 0·2 inch apart, the hind one being opposite the anterior border of the orbito-zygomatic arch. The anterior palatine slit opens between the third and fourth front ones. Thus, of the New-Guinea and Queensland examples, both possess seventeen palatal ridges; but the pattern of these is unlike, that of the Queensland animal, to all intents and purposes, resembling that extant in the common *E. hystrix*.

With respect to the cranium, I compared that from Queensland side by side with those in the College-of-Surgeons Museum, viz. five in all, intact. Of these specimens of *Echidna*-skulls, that numbered 1705 A is labelled *E. hystrix*, from Grafton, Clarence River, New S. Wales; No. 1708 A is that of a young male which lived in the Zoological Gardens; No. 1708 B is that of a complete skeleton of a young *E. setosa* from Tasman's Peninsula. Of No. 1705, *E. hystrix*, the locality is unrecorded; and No. 1704 A is marked in the Catalogue, "Skull of an *Echidna*." Moreover Prof. Flower lately has had added to the collection a cast of the skull of *Echidna (Acanthoglossus) bruijnii* (No. 1723 A), presented by Prof. Gervais.

The subjoined Table gives certain of the measurements in inches and deci-



Palate of Capt. Armit's *Echidna* from Queensland. Nat. size.

mals, of the skulls in question; and it is to be noted that those in the first two columns are from less mature animals than the succeeding three.

Admeasurements of Echidna crania.

Catalogue numbers of skulls...	1705 A.	1708 A.	1708 B.	1705.	1704 A.	Queens- land.	New-Guinea coast.
Extreme length	3.6	3.8	3.9	4.1	4.15	4.2	7.9
Extreme breadth (temporo-pa- rietal region)	1.65	1.65	1.8	1.8	1.8	1.7	2.3
Greatest vertical height.....	1.35	1.4	1.4	1.45	1.4	1.27	1.9
From tip of beak to front of orbit.....	1.8	1.9	1.9	2.1	2.15	2.1	5.1

Now it will be seen that there is a nearly uniform relative proportion between the five skulls and that from Queensland, as can be distinguished from the New-Guinea cast in the right-hand column. Nay, it is hard to point out any characters, irrespective of similarity of dimensions, to separate the skulls, whether from Tasmania, New South Wales, or Queensland. For example, the closest inspection of the so-called *E. setosa* (No. 1708 B), from Tasmania, shows, one would say, perfect agreement in most details with Capt. Armit's Queensland specimen, though the former to the eye seems a shorter, broader, higher skull, with a slightly fuller temporal region, than does the latter. Again, the male skull of the *E. hystrix* (No. 1708 A), has somewhat shorter præ- and postpalatine fissures than 1708 B; questionably a matter of age or sex, though both are not from old animals. In 1704 A the anterior condyloid foramina are open and the palatine region generally broadish. In No. 1705, evidently a thoroughly old skull, judging from its solid osseous texture, both orbito-frontal and parieto-occipital regions are ample.

The female Queensland skull, almost exactly of the same length as those numbered 1705 and 1704 A, is barely appreciably narrower across the cerebral area, but decidedly lower in the same region. Whether this last feature is a matter of sex (it being from an adult female) or a tendency to variation, I am unable to say. At all events, it is a feature so trifling in its way that no argument can be drawn therefrom.

The lower jaw of this same Queensland skull is a perfect counterpart of those of *E. hystrix* and *E. setosa* compared.

It would be but a reiteration of the statements of Prof. W.

Peters and G. Doria *, of Prof. Rolleston †, of Mr. E. P. Ramsay, and of Prof. Gervais, to detail the widely marked differences which appertain to the skull of the Northern New-Guinea *Echidna*, *E. (Acanthoglossus) bruijnii*. Size, length and curvature of beak, &c. are appreciable at a glance, and cannot be mistaken.

On the skull of the Port-Moresby *Echidna*, *E. (Tachyglossus) lawesii*, no data are yet published to enable a comparison to be made.

I may say I regret the change of generic name from the well-known and established *Echidna* to that of *Tachyglossus*, which latter, Prof. Peters points out, has priority. I should prefer also that of *Proechidna* for *Acanthoglossus*, as incidentally hinted by Prof. Gervais (*l. c.* p. 43).

In conclusion, I would state that from the data which have come under my observation we cannot regard Capt. Armit's animal found in Queensland as offering any distinction from that of the wide-spread *Echidna hystrix*; and so far as skull alone is concerned, that termed *E. setosa* cannot positively be distinguished from *E. hystrix*. On this latter head and that of supposed exterior distinctive characteristics, I look forward to the continuation of Prof. Gervais's admirable memoir to furnish us with evidence of a more decisive nature than at present can be gathered from the scattered published data.

Capt. Armit's note seems to be useful in determining the animal's northern range in Australia. But I may add that I trust he will endeavour, by further investigations on the spot, to clear up those enigmas in the procreation and development of the Monotremes which I have mentioned in the footnote to his own paper.

* Ann. del Mus. Civ. di Sci. Nat. de Genova, 1876, tom. ix. p. 183, "Descrizione di una nuova specie di *Tachyglossus* proveniente della Nuova Guinea settentrionale."

† Report Brit. Assoc. 1877.